ENVIRONMENTAL STUDIES IN THE K-12 CLASSROOM: A TEACHER'S VIEW

Prepared by
Survey Research Center
University of Maryland College Park
December 2000

for the

NAAEE
NORTH AMERICAN ASSOCIATION FOR ENVIRONMENTAL EDUCATION

and the

ENVIRONMENTAL LITERACY COUNCIL

ENVIRONMENTAL STUDIES IN THE K-12 CLASSROOM: A TEACHER'S VIEW

Prepared by
Survey Research Center
University of Maryland College Park
December 2000

for the

North American Association for Environmental Education

and the

Environmental Literacy Council

Environmental Studies in the K-12 Classroom: A Teacher's View was prepared by the North American Association for Environmental Education (NAAEE) and the Environmental Literacy Council (ELC) in partnership with, and with the financial support of, the National Environmental Education and Training Foundation.

The North American Association for Environmental Education (NAAEE) is a network of professionals, students, and volunteers working in the field of environmental education throughout North America and in over 55 countries around the world. Since 1971, the Association has promoted environmental education and supported the work of environmental educators. Additional information about NAAEE is available at http://www.naaee.org.

The Council is a non-profit organization whose mission is to support educators by providing expert evaluation of the substantive content of teaching materials, and with the scientific and economic background information on environmental issues in a manner that is readily available and directly useful to educators. Additional information about ELC is available at http://www.enviroliteracy.org.

December 29, 2000.

Edward J. McCrea and Kathleen deBettencourt–Project Managers and Senior Editors.

ACKNOWLEDGMENTS

NAAEE and ELC would like to acknowledge the significant contribution of the project advisory committee members who provided advice on research design, reviewed drafts of materials, and commented on final presentation and findings.

Dr. John Disinger, The Ohio State University
Dr. Rosalyn McKeown, University of Tennessee
Dr. Deborah Simmons, Northern Illinois University

Table of Contents

List of Tables

I. Executive Summary

The North American Association for Environmental Education (NAAEE) and the Environmental Literacy Council (ELC), in partnership with the National Environmental Education and Training Foundation, sponsored a nationwide survey of teachers to gather information on how education about the environment is conducted in the classroom. The population for this survey consisted of a random sample of all K (kindergarten)–12 teachers in the United States. Of the 1505 teachers who responded to the mailed survey, 61.2%said that they included environmental topics in their curriculum. The average time spent teaching about the environment was 115 hours per year.

K-4 teachers were more likely to report teaching environmental topics (83.0%) than grades 5-8 teachers (58.7%), grades 9-12 teachers (44.5%), and teachers who taught some combination of K-4, 5-8, and 9-12 grade levels (43.1%).

Almost 70% percent of teachers include environmental topics in their curriculum (69.4 %), while 4% teach courses about the environment. Recycling and waste management is the most frequently included subject, as almost 90% of the teachers include it in their topics. The most commonly used sources of environmental teaching materials are textbooks (79.1%), the library (75.9%), and newspapers (74.0%). Journals are used the least frequently (26.5%). Textbooks are the most relied on source for teachers of grades 5-8 (88.8%), the library - for teachers at grades K-4 (87.4%), and newspapers - for teachers at grades 9-12 (83.6%). Groups and agencies (27.0%), the Internet (19.4%), the library (18.2%), and textbooks (17.9%) were rated most frequently as the "most satisfactory" sources of materials by the teachers who indicated that they teach environmental topics.

Teachers reported using materials from a variety of suppliers, including environmental groups; local, state, and federal education agencies; local, state, and federal natural resource/environmental management agencies; commercial publishers; educational groups; and business/industry. About half of the respondents said they used materials from each of these suppliers. An exception was the materials from business and industry which was used by about 38% of teachers. The "most useful" suppliers were educational groups (21.3%), commercial publishers (20.0%), and governmental natural resource/environmental management agencies (18.8%). The main reasons the teachers found suppliers' material useful was the quality of the materials. The major ways in which teachers learn about environmental materials from suppliers were direct mail (26.5%) and word of mouth (23%).

Discussion of environmental topics is the most frequent method used to teach environmental topics (about 90%) at all grade levels. Hands-on activities / projects are used by over 90% of K-4 teachers versus 80% for grades 5-8 and 55% for grades 9-12. Problem solving exercises are employed about equally at all grade levels (55%-61%). Teachers of grades 9-12 are much less likely to use fields trips than are teachers in the lower grades. Civic action exercises are the least used method (3.5 % of K-4 teachers report using civic action exercises versus 13.5 % for 5-8 and 19.3% for 9-12).

Prior to becoming teachers, only about one in ten (10.4%) of the teachers who now teach environmental topics had courses in environmental teaching methods, while 28.9% reported receiving such training since they began teaching. Overall, about a third (39.2%) of teachers of environmental topics have been trained in environmental teaching methods either before or after becoming teachers. Only about 27% of the teachers who now teach environmental topics had courses in environmental science / ecology or environmental studies before they became a teacher, while almost 36% reported receiving such training since they began teaching. Overall, over 60% of teachers of environmental topics have been trained in environmental science / ecology or environmental studies either before or after becoming teachers.

Encouraging students to be active in protecting the environment was the reason most frequently cited for choosing to teach about the environment: it was mentioned by 51.1% of the 920 teachers teaching environmental topics. The most frequently mentioned reason for not teaching about the environment was irrelevancy to their curriculum, as reported by 48.8% of the 585 teachers who do not teach environmental topics. “Resistance from parents,” “resistance from school district,” “resistance from school board” and “issues are too controversial” were cited by less than 1% of the teachers as reasons for not teaching about the environment.

II. Introduction

During the fall of 1998 to summer of 1999 the Survey Research Center at the University of Maryland (SRC) conducted a nationwide mail survey of K-12 school teachers. The primary objective of this study was to gather information on how education about the environment is conducted in the classroom. An additional goal was to estimate what proportion of all K-12 school teachers include education about the environment in their instruction.

The study was sponsored by the North American Association for Environmental Education (NAAEE) and the Environmental Literacy Council (ELC), in partnership with the National Environmental Education and Training Foundation. The sponsors were interested in the following research questions:

- Who is teaching environmental topics in the classroom, in terms of type of teacher, grade level, and subject?
- Are environmental topics taught as separate courses or are they infused into various subjects?
- How much time do teachers spend teaching about the environment?
- How do teachers find materials to use in teaching about the environment?
- What materials do they use and what do they look for in environmental materials?
- Is pre-service and in-service environment-related teacher training provided? If so, by whom?
- To what extent is education about the environment encouraged by local school districts?
- What goals do teachers hope to accomplish by teaching about the environment?

III. A Report of Survey Methods

A. Sample Design

The target population for this study was K-12 school teachers in the United States. Although some survey data on education about the environment had been collected in the past, the surveys were either small, state-based, or they used convenience *(i.e.,* non-probability) samples. In this study, strict probability sampling procedures were used. The sampling frame was a national registry of teachers of public, private, and parochial schools. This frame was obtained by the Survey Research Center from the Quality Education Data company (QED). The QED database includes 23 different types of teachers. Several categories of teachers define the target population for this study: Art, At-Risk, Business Education, Computer Science, English and Reading, Family / Consumer Science, Fine Arts, Foreign Languages, Mathematics, Music, Physical Education, School to Career, Science, Social Studies, and Special Needs.[1]

All records with no addresses were removed from the sample. The sample for the pretest was a random sample of 25 persons. The sample for the main data collection was a random sample of 3,900 persons from the remaining list.

B. Questionnaire Development and Pretesting

In consultation with NAAEE and ELC, SRC drafted a questionnaire to meet the research goals. That questionnaire was reviewed by senior SRC staff members to identify potential problems with question wording. Pretest surveys were mailed to 25 respondents. The returned questionnaires were reviewed for inconsistencies and other problems. Subsequently, debriefing calls were made, for which the pretest respondents were asked to have their copy of the questionnaire available. In the debriefing call, respondents were asked about any problems or inconsistencies, about their understanding of key terms used in the questionnaire and any problems they had with the response categories provided. Based on the pretest results, the final version of the questionnaire was drafted.

[1]Those listed in the database but excluded from the sample were Administrators, Coaches, Curriculum and Instruction Coordinators (examples of this include Adult Educators, GED Instructors and ROTC Instructors), Fund-raisers, Guidance / Student Services, Librarians / Media Specialists and Support Staff.

C. Main Data Collection

Questionnaires, along with cover letters asking for participation, were mailed to 3,900 teachers in April 1999. The cover letter described the nature of the survey, explained how the respondents were selected for the survey, and promised confidentiality. All teachers were asked to respond, whether they taught about the environment or not.

The following specific information was provided in the cover letter sent with the questionnaire:

> *Nature of the Survey:* Recycling, endangered species, pollution, global warming and Earth Day are just some of the topics discussed in classrooms today. We want to find out which teachers are including environmental topics in their classes and why.
>
> *How the Respondents Were Selected:* Your name has been selected at random from a list of K-12 teachers to participate in this national study sponsored by the North American Association for Environmental Education and the Environmental Literacy Council to assess how school teachers incorporate environmental topics into the curriculum.
>
> *Promise of Confidentiality:* Your responses will be kept strictly confidential. The identification number on the questionnaire is for tracking purposes only and is never linked with your name and school. The results of the study will be reported only in group form and individual respondents will never be identified.
>
> *All Teachers Should Respond:* Teachers *from all disciplines* are being asked to tell us about the methods and materials they use and how prepared they feel to teach environmental topics. For the study results to be truly representative, it is important that all teachers, *regardless of the subjects they* teach, return their questionnaire. Even if you *don't teach about the environment* at all, we ask you to take a few minutes to fill out the questionnaire.

In order to increase the response rate on the first mailing, sample members were informed in the cover letter that respondents who returned the questionnaire by May 15, 1999 were eligible to win a $500 cash prize.

Regional distribution of the Surveys Mailed. Table 1, below, shows the regional distribution of the surveys mailed.

Table 1. Regional Distribution of the Surveys Mailed

Region	Actual Number	Percentage of Total
1. New England	227	5.8%
2. Mid-Atlantic	575	14.7%
3. Southeast	566	14.5%
4. South Central	458	11.7%
5. Midwest	1,076	27.6%
6. Rocky Mountain	158	4.1%
7. Southwest	482	12.4%
8. Pacific	358	9.2%
Total	**3,900**	**100.0%**

D. Sample Disposition

Final sample Disposition. A random sample of 3,900 teachers was selected from the QED database. Of these, 109 questionnaires were returned because the teacher was retired, had died, or was no longer worked at the school specified in the sampling list. Eleven surveys were returned to SRC because of bad addresses. Of the remaining teachers, 1,505 returned the survey. The response rate was slightly under 40 percent, as specified in Table 2.[2]

Table 2. Final Sample Disposition Table

Questionnaires	Numbers	Percentage of Total Mailed
Questionnaires Mailed	3,900	100.00%
Bad Addresses	11	0.28%
Ineligible	109	2.79%
Refusals	1	0.03%
Completed Surveys	1,505	38.59%
Response Rate when bad addresses (11), ineligible recipients (109), and refusals (1) are excluded	1,505	39.83%

[2]Because of the unexpectedly high response to the first mailing (putting the total response to well over the contract-specified 1,200), SRC did not send out a second mailing of the survey.

IV. Survey Results

A. Report Organization

This report is organized as follows:

- Background data on all 1505 respondents versus the 920 respondents who teach environmental topics including grades taught, years of teaching, teaching context described in terms of students and subjects, and regional distribution.

- The largest section of the report describes 920 respondents who teach environmental topics (61.1% of all respondents). The data include specific environmental topics that are taught, sources of materials, suppliers from which materials are obtained, satisfaction with materials, methods of teaching environmental topics, support by school or district, and training (environmental courses / workshops) for teachers.

- Reasons for teaching and not teaching environmental topics.

- Main conclusions and limitations of this study.

B. Background Data for All Respondents versus Respondents Who Teach Environmental Topics

1. Grades Taught. Teachers were asked to indicate what grade(s) they were currently teaching. Table 3 presents the distribution of (a) all 1,505 respondents and (b) the 920 respondents who reported teaching environmental topics by grade level taught. About one-third of all respondents (34.8%) and almost one-half of those who reported that they taught environmental topics (47.1%), teach at grades K-4. About a quarter of all respondents (24.7%) and a quarter of those who reported they taught environmental topics (23.7%) teach at grades 5-8. Respondents who reported they taught environmental topics were slightly less likely to report teaching some combination of K-4, 5-8, and 9-12 grade levels (10.4% vs. 14.7% of all respondents), as well as teaching grades 9-12 (18.8% vs. 25.9%).

Table 3[3]. Grades Taught

Grade Level	(a) All respondents		(b) Teachers of environmental topics	
	Number	Percentage	Number	Percentage
1. K - 4	516	34.8%	428	47.1%
2. 5 - 8	366	24.7%	215	23.7%
3. 9 - 12	384	25.9%	171	18.8%
4. Combination of K-4, 5-8, 9-12	218	14.7%	94	10.4%
Total	**1484**	**100.0**	**908**	**100%**

[3] The percentage in tables are shown to one decimal place so that they sum to about 100%, even though for these sample sizes, the digit after the decimal is often not significant. In the text, rounded numbers will sometimes be used for the sake of simplicity. Percentages in the report tables may not always sum to exactly 100% due to rounding. There were twenty-one respondents who did not answer this question.

2. Percentage of Teachers Who Present Environmental Topics by Grade Level. Teachers were asked to indicate if they taught environmental topics. Environmental topics were defined on the questionnaire as being "those that relate to natural resources. Examples include energy sources, recycling, endangered species, global warming, water quality, and air quality." Table 4 shows the percentage of teachers who present environmental topics for each grade level. K-4 teachers were more likely to report teaching environmental topics (83.0%) than grades 5-8 teachers (58.7%), grades 9-12 teachers (44.5%), and teachers who taught some combination of K-4, 5-8, and 9-12 grade levels (43.1%).

Table 4. Percentage of Teachers Who Present Environmental Topics by Grade Level

Grade level	All respondents	Number teaching environmental topics	Percentage teaching environmental topics
1. K - 4	516	428	83.0%
2. 5 - 8	366	215	58.7%
3. 9 - 12	384	171	44.5%
4. Combination of K-4, 5-8, 9-12	218	94	43.1%
Total	**1484**	**908**	**61.2%**

3. Years of Teaching. Teachers were asked how many years they had been a teacher. Teachers who reported they taught environmental topics were similar to all respondents in years of teaching (Table 5). Slightly more than a quarter of all respondents and teachers of the environmental topics have been teaching less than 10 years (26.2% and 26.5%), a little more than one third in both groups have been teaching between 10 and 20 years (35.2% and 35.9%), almost one third between 21 and 30 years (31.2% and 30.5%), and less than one out of ten have been teaching more than 30 years (7.4% and 7.1%). The average number of years spent teaching was 17.3 years for all respondents and 17.1 for the teachers of the environmental topics. The median number of years spent teaching was 17 years for both groups.

Table 5[4]. Years of Teaching

Years	(a) All respondents		(b) Teachers of environmental topics	
	Number	Adjusted Percentage	Number	Adjusted Percentage
Less than 10 years	393	26.2%	243	26.5%
10-20	529	35.2%	330	35.9%
21-30	468	31.2%	280	30.5%
Over 30	111	7.4%	65	7.1%
Total	**1501**	**100%**	**918**	**100%**

[4] Four respondents did not answer this question. Except where specified, tables do not include non-respondents to a particular item. Also excluded are respondents whose answers were not codeable, (e.g. a respondent who selects multiple response categories when the instruction is to select only the main one). This means that the number of respondents will vary in some tables.

4. Type of Classes. As shown in Table 6, the teachers vary in terms of their teaching domain (*i.e.*, the students and subjects they teach during a typical school day). Some teach the same students all day; others teach the same subject to different students (*e.g.*, a science teacher who has students in fifth and sixth grades); while still others teach several subjects to different students (*e.g.*, a physical education teacher who also has health education classes). When the relative proportions across categories are compared, the data indicate that the teachers of environmental topics were more likely to report teaching the same students all day as compared to all respondents (53.7% vs. 38.3%), and less likely to report teaching the same subject to different students (20.5% vs. 31.7%), and teaching different subjects to different students (25.8% vs. 30.0%).

Table 6[5]. Type of Classes

Type of class (Students and Subjects)	(a) All respondents		(b) Teachers of environmental topics	
	Number	**Percentage**	**Number**	**Percentage**
1. Teach same students all day	547	38.3%	466	53.7%
2. Teach different students the same subject	452	31.7%	178	20.5%
3. Teach different students different subjects	429	30.0%	224	25.8%
Total	**1,428**	**100%**	**868**	**100%**

[5] Seventy-seven respondents did not answer this question.

5. Primary Subjects Taught. Teachers were asked what one subject they primarily taught. Table 7 shows the distribution of answers to this question. This question was only asked of teachers who do not teach the same group of students most or all of the day. For all teachers in this category the most frequently reported primary subjects were English or reading (20.6%), mathematics (15.9%), science (13.1%), and social studies (9.1%). For the teachers who reported that they included environmental topics in their curriculum, the most frequently reported primary subjects were science (27.4%), English or reading (14.7%), social studies (14.0%), and mathematics (9.4%). The least frequently mentioned primary subjects were health and business education for both groups of teachers.

Table 7[6]. Primary Subjects Taught

Subject	(a) All respondents		(b) Teachers of environmental topics	
	Number	Percentage	Number	Percentage
1. English or Reading	186	20.6%	58	14.7%
2. Mathematics	144	15.9%	37	9.4%
3. Science	118	13.1%	108	27.4%
4. Other	93	10.3%	40	10.2%
5. Social Studies	82	9.1%	55	14.0%
6. At Risk/Special Education	77	8.5%	29	7.4%
7. Music	47	5.2%	14	3.6%
8. Physical Education	36	4.0%	8	2.0%
9. Foreign Language	34	3.8%	10	2.5%
10. Computer Science	24	2.7%	6	1.5%
11. Art	22	2.4%	9	2.3%
12. Family/Consumer Science	20	2.2%	15	3.8%
13. Business Education	13	1.4%	2	0.5%
14. Health	8	.9%	3	.8%
Total	**904**	**100%**	**394**	**100%**

[6] Fifty-four respondents did not answer this question. This question was not asked of the 547 teachers who teach the same students all day.

6. Regional Distribution of Respondents. As can be seen in Table 8, the regional distribution of teachers of environmental topics is similar to the distribution of all respondents.

Table 8. Regional Distribution of Respondents

Region	(a) All respondents		(b) Teachers of environmental topics	
	Number	Percentage	Number	Percentage
1. New England	90	6.0%	44	4.8%
2. Mid-Atlantic	225	15.0%	127	13.8%
3. Southeast	223	14.8%	134	14.6%
4. South Central	166	11.0%	109	11.8%
5. Midwest	434	28.8%	270	29.3%
6. Rocky Mountain	65	4.3%	43	4.7%
7. Southwest	184	12.2%	114	12.4%
8. Pacific	118	7.8%	79	8.6%
Total	**1505**	**100%**	**920**	**100%**

C. Results for Teachers Who Include Environmental Topics in Their Curriculum

1. Hours Spent Per Year In Classroom Teaching. Teachers were asked to estimate the number of hours they spent teaching each year. This section of the report presents results for the 920 respondents who reported that they include environmental topics in their curriculum. Table 9 shows the distribution of answers to the question about how many hours per year these teachers spend in classroom teaching.[7] The valid responses total 588 cases; among these, slightly more than a quarter teach between 800 and 1000 hours (27.2%), more than a third between 1,001 and 1,250 hours (37.6%), and almost a third between 1,251 and 1,500 hours (30.1%). Only 5.1% teach more than 1,501 hours. The average for all teachers reporting was 2,155 hours per year, and the median was 1,110 hours per year.

Table 9. Hours Spent Per Year In Classroom Teaching

Hours	Number of Teachers	Percentage
800-1000 hours	160	27.2%
1001-1250	221	37.6%
1251-1500	177	30.1%
1501-2000	30	5.1%
Total	**588**	**100%**

[7] A number of responses to this question were outside of what was judged to be a valid reporting range. Those responses were treated as missing data. Telephone calls to respondents with out-of-range reports failed to find any consistent single reason for the misreporting.

2. Hours Spent Teaching About the Environment. The survey then asked "how many of these hours do you spend in all teaching about the environment?" Table 10 shows the number of hours per year spent teaching environmental topics. Almost two-thirds of respondents teach about the environment fewer than 50 hours per year (62.9%); a fifth of respondents teach 50-100 hours (20.1%); less than one out of ten teach 101-200 hours (9.8%); or over 200 hours per year (7.2%). The average was 115 hours per year. The median was 30 hours per year.

Table 10[8]. Hours Spent Teaching About the Environment

Hours	Number of Teachers	Percentage
Under 50 hours	347	62.9%
51-100	111	20.1%
101-200	54	9.8%
Over 200	40	7.2%
Total	**552**	**100%**

[8] A number of responses to this question were outside of what was judged to be a valid reporting range. Those responses were treated as missing data. Telephone calls to respondents with out-of-range reports failed to find any consistent single reason for the misreporting.

3. How are Environmental Topics Provided: Course Versus Inclusion in Curriculum. Teachers were asked to indicate whether they: "Teach a course(s) about the environment; Include environmental topics in other courses; or Do both?" Nearly 70% of the teachers of environmental topics (Table 11) included these topics as part of their regular curriculum, but did not teach a separate course. A much smaller percentage (4.0%) teach a course related to environmental topics, but did not include environmental topics in other courses they might teach. Approximately, a quarter of the respondents (26.6%) reported, however, teaching both a course and including environmental topics in other courses.

Since teachers were asked to respond to only one category (i.e., teach a course, include environmental topics, or do both), the data in Table 11 must be examined more holistically. Of the 906 individuals responding to this item, 277 (30.6%) reported teaching a course (with the vast majority also including environmental topics in other courses). Perhaps even more striking, 870 (96%) reported including environmental topics in their regular curriculum.

Table 11[9]. How are Environmental Topics Provided: Course Versus Inclusion in Curriculum

Method of teaching	Number who teach only this way	Percentage
Teach a course(s) about the environment	36	4.0%
Include environmental topics	629	69.4%
Both (teach a course and include environmental topics in other courses)	241	26.6%
Total	**906**	**100%**

[9] Fourteen respondents did not answer.

4. Specific Topics Included by Teachers of Environmental Topics. Respondents were asked to indicate what environmental topics they taught (Table 12). A list of nine specific topics (e.g., conserving energy, recycling and waste management, water quality) was provided. They were also given the opportunity to list other topics they taught. Only global warming and the ozone layer, acid rain, and population growth are taught by fewer than half and, even in these cases, at least three out of ten respondents include these topics.

Table 12. Specific Topics Included by Teachers of Environmental Topics

Environmental topic	Number teaching topic (n=920)	Percentage
1. Recycling and waste management	803	87.3%
2. Endangered species	710	77.2%
3. Conservation of energy	688	74.8%
4. Forests and wetlands	598	65.0%
5. Air quality	584	63.5%
6. Water quality	580	63.0%
7. Global warming and the ozone layer	348	37.8%
8. Acid rain	310	33.7%
9. Population growth	300	32.6%
10. Other topics	74	8.0%

5. Specific Environmental Topics by Grade Level. When environmental topics taught are contrasted with grades taught, recycling and waste management, conservation of energy, and endangered species were the three subjects most frequently included across grades (Table 13). Overall, a wider variety of topics was included by teachers at grade levels 5-8 and 9-12 as compared to teachers of grade levels K-4 and those who taught some combination of K4, 5-8, and 9-12. Population growth was much more frequently included by the teachers at grade level 9-12 (65.5%) than teachers at other grade levels (14.3% for K-4, 45.6% for 5-8, and 25.5% for combination of grade levels).

Table 13. Specific Environmental Topics by Grade Level

Environmental topic	Grade level							
	K-4 (n=428)		5-8 (n=215)		9-12 (n=171)		Combination (n=94)	
	N	%	N	%	N	%	N	%
1. Recycling and waste management	402	93.9%	181	84.2%	129	75.4%	81	86.2%
2. Endangered species	392	91.6%	149	69.3%	98	57.3%	63	67.0%
3. Conservation of energy	322	75.2%	159	74.0%	121	70.8%	67	71.3%
4. Forests and wetlands	312	72.9%	136	63.3%	87	50.9%	56	59.6%
5. Air quality	281	65.7%	140	65.1%	105	61.4%	50	53.2%
6. Water quality	268	62.6%	142	66.0%	110	64.3%	52	55.3%
7. Global warming and the ozone layer	101	23.6%	120	55.8%	95	55.6%	27	28.7%
8. Acid rain	89	20.8%	108	50.2%	85	49.7%	26	27.7%
9. Population growth	61	14.3%	98	45.6%	112	65.5%	24	25.5%
10. Other topics	19	4.4%	17	7.9%	98	57.3%	11	11.7%

6. Where Environmental Teaching Materials are Obtained. The survey asked respondents to indicate which of eight sources of environmental teaching materials (e.g., textbooks, TV or radio, newspapers) they used (Table 14). These sources fall into three groups by frequency of use. Three sources — textbooks, the library, and newspapers — are the leading sources used by teachers of environmental topics. All three of these sources are used by more than seven out of ten respondents. The next group of sources — news magazines, groups or agencies, the Internet, and TV / radio — are all used by nearly six in ten teachers. Only journals, with 26.5%, are used by less than half of the teachers. It should be noted that nearly one out of five teachers listed an additional source of information.

Table 14. Where Environmental Teaching Materials are obtained

Type of Source	Number of Teachers (n=920)	Percentage Using
1. Textbooks	728	79.1%
2. Library	698	75.9%
3. Newspaper	681	74.0%
4. News magazines	571	62.1%
5. Groups or agencies	548	59.6%
6. Internet	546	59.3%
7. TV or radio	527	57.3%
8. Journals	244	26.5%
9. Other sources	176	19.1%

7. Where Environmental Teaching Materials are Obtained by Grade Level. As shown in Table 15, teachers at grade level K-4 used the library (87.4%) more than any other source of environmental materials. Textbooks were the most frequently used source by teachers at grade level 5-8 (88.8%), and newspapers — by teachers at grade level 9-12 (83.6%). The usages of TV/Radio, news magazines, newspapers, journals, and Internet increased with grade level, while usage of library and groups/agencies decreased.

Table 15. Where Environmental Teaching Materials are Obtained by Grade Level

Type of Source	Grade level							
	K-4 (n=428)		5-8 (n=215)		9-12 (n=171)		Combination (n=94)	
	N	%	N	%	N	%	N	%
1. Textbooks	326	76.2%	191	88.8%	138	80.7%	67	71.3%
2. Library	374	87.4%	151	70.2%	95	55.6%	67	71.3%
3. Newspapers	284	66.4%	180	83.7%	143	83.6%	66	70.2%
4. News magazines	254	59.3%	137	63.7%	116	67.8%	55	58.5%
5. Groups/agencies	266	62.1%	129	60.0%	93	54.4%	55	58.5%
6. Internet	233	54.4%	141	65.6%	110	64.3%	54	57.4%
7. TV or radio	216	50.5%	137	63.7%	119	69.6%	50	53.2%
8. Journals	101	23.6%	58	27.0%	61	35.7%	19	20.2%
9. Other sources	93	21.7%	38	17.5%	21	12.3%	21	22.3%

8. Sources of Materials Teachers Indicated as "Most Satisfactory". The survey then asked teachers to indicate which one of the eight sources of materials they were most satisfied with (Table 16). Teachers who used materials from environmental groups and natural resources agencies were more likely to rate them as "most satisfactory" (27% of users) than users of any other listed source. The Internet (19.4%), the library (18.2%), and textbooks (17.9%) were the other sources most frequently rated as "most satisfactory" by users. It is interesting to note that 57.4% of those who named a source of information other than those listed on the survey considered that source most satisfactory.

Table 16. Sources of Materials Teachers Indicated as "Most Satisfactory"

Type of source	Number of "Most Satisfactory" responses	Percentage of users
1. Textbooks	130	17.9%
2. Library	127	18.2%
3. Newspaper	74	10.9%
4. News magazines	84	14.7%
5. Groups/agencies	148	27.0%
6. Internet	106	19.4%
7. TV or radio	31	5.9%
8. Journals	26	10.7%
9. Other	101	57.4%

9. The Main Reason of Satisfaction by Most Satisfactory Source. Table 17 shows the tabulation of the main reasons of satisfaction for each type of source of environmental teaching materials rated as "most satisfactory." Ease of locating was the most frequently mentioned reason for satisfaction with textbooks (69.0%), the library (61.5%), the Internet (59.4%), and newspapers (56.8%). For groups/agencies (76.4%), journals (73.1%), and news magazines (55.0%) quality was a more prevalent reason for satisfaction.

Table 17. The Main Reason of Satisfaction by Most Satisfactory Source

Type of Source	Reason							
	Ease of locating (n=361)		Cost (n=32)		Quality (n=325)		Other (n=99)	
	N	%	N	%	N	%	N	%
1. Textbooks (n=126)	87	69.0%	1	0.8%	30	23.8%	8	6.3%
2. Library (n=122)	75	61.5%	4	3.3%	37	30.3%	6	4.9%
3. Newspapers (n=74)	42	56.8%	8	10.8%	7	9.5%	17	23.0%
4. News magazines (n=80)	25	31.3%	2	2.5%	44	55.0%	9	11.3%
5. Groups/agencies (n=144)	22	15.3%	4	2.8%	110	76.4%	8	5.6%
6. Internet (n=101)	60	59.4%	6	5.9%	24	23.8%	11	10.9%
7. TV or radio (n=29)	11	37.9%	3	10.3%	10	34.5%	5	17.2%
8. Journals (n=26)	6	23.1%	0	0	19	73.1%	1	3.8%
9. Other sources (n=115)	33	28.7%	4	3.5%	44	38.3%	34	29.6%

10. Percentage of Teachers Using Different Suppliers by Type of Supplier. Next, the teachers were asked if they used any materials from six different suppliers (Table 18). With the exception of business/industry which was used by 38.3% of teachers, all of the listed suppliers were used by about half or more teachers.

Table 18. Percentage of Teachers Using Different Suppliers by Type of Supplier

Organization type	Number (n=920)	Percentage
Environmental groups	529	57.5%
Local/state/federal educational agencies	520	56.5%
Local/state/federal natural resource/ environmental management agencies	505	54.9%
Commercial publishers	502	54.6%
Educational groups	454	49.3%
Business/industry	352	38.3%

11. Suppliers of Environmental Materials by Grade Level. Table 19 presents the use of materials from various suppliers by grade level. Grade 9-12 teachers seem less likely than any of the lower grades to use materials from environmental or educational groups and somewhat more likely to use materials from business and industry. Government environmental agencies' materials are more often used in grades 5-8 than in lower or higher grades. Commercial publishers' materials are used more at the K-4 level than in the higher grades.

Table 19. Suppliers of Environmental Materials by Grade Level

Organization type	Grade Level							
	K-4 (n=428)		5-8 (n=215)		9-12 (n=171)		Combination (n=94)	
	N	%	N	%	N	%	N	%
Environmental groups	258	60.3%	127	59.1%	82	48.0%	55	58.5%
Local, state, or federal educational agencies	230	53.7%	128	59.5%	100	58.5%	53	56.4%
Local, state, or federal natural resource/ environmental management agencies	227	53.0%	133	61.9%	80	46.8%	58	61.7%
Educational groups	224	52.3%	112	52.1%	68	39.8%	42	44.7%
Commercial publishers	249	58.2%	113	52.6%	83	48.5%	50	53.2%
Business/industry	167	39.0%	70	32.6%	80	46.8%	30	31.9%

12. Percentage of Teachers Rating Materials as Most Useful by Supplier. The survey then asked teachers to indicate which type of supplier they found most useful. The most useful suppliers for the respondents were educational groups, commercial publishers and government environmental agencies; each ranked most satisfactory by about one in five teachers who used them (Table 21). Business sources received the fewest "most satisfactory" ratings (9.7%).

Table 20. Percentage of Teachers Rating Materials as Most Useful by Supplier

Organization type	Number of "Most Useful" ratings	Percentage of users
Educational groups	105	21.3%
Commercial publishers	99	20.0%
Local, state, or federal natural resource/ environmental management agencies	157	18.8%
Environmental Groups	108	12.6%
Local, state, or federal educational agencies	101	11.8%
Business/industry	47	9.7%

13. Main Reason Materials from Particular Suppliers were Useful. The survey included an open-ended question about the suppliers of materials listed above: "What's the main reason why you found it useful?" Table 20 presents the results. The quality of the materials and their appropriateness for the grade level were mentioned about equally, followed by ease of use and accessibility.

Table 21[10]. Main Reason Materials from Particular Suppliers were Useful

Reason for usefulness	Number	Percentage
Quality	165	22.3%
Appropriate to the grade level	144	19.5%
Accessibility	98	13.2%
Ease of Use	97	13.1%
Available support–networking and training	68	9.2%
Relevant to daily lives/local issues	62	8.4%
Interesting to the students	31	4.2%
Other	75	10.1%
Total	**740**	**100%**

[10] There were one hundred and eighty respondents who did not answer this question.

14. Methods for Finding Environmental Materials. The survey asked, "How do you mainly find out about environmental education materials?" Table 22 shows the distribution of responses to the question about ways of finding out about environmental materials. Direct mail (26.5%) and word of mouth (23.0%) were mentioned more frequently than training workshops (11.3%), catalogues (11.1%), conferences (9.4%), and the Internet (8.2%).

Table 22[11]. Methods for Finding Environmental Materials

	Number of Teachers	Percentage
Direct mail	195	26.5%
Word of mouth	169	23.0%
Attend training workshops	83	11.3%
Catalogues	82	11.1%
Conferences	69	9.4%
Internet	60	8.2%
Some other way	78	10.6%
Total	**736**	**100%**

[11] One hundred and eighty-four respondents did not answer this question.

15. Methods Used by Teachers who Teach Environmental Topics. The survey asked what methods teachers used to teach about the environment. Table 23 shows the frequency of use of different teaching methods. Discussions and the use of hands-on activities or projects are the most commonly used methods (89.1% and 80.0%), while debates on environmental issues and civic action exercises, such as examining environmental legislation, are the least used methods (24.5% and 9.5%).

Table 23. Methods Used by Teachers who Teach Environmental Topics

Method	Number of Teachers (n=920)	Percentage
Discuss environmental topics covered in textbooks or other reading material	820	89.1%
Hands-on activities or projects	736	80.0%
Problem solving exercises	526	57.2%
Field trips	448	48.7%
Independent or group research projects	381	41.4%
Debates on environmental issues	225	24.5%
Civic action exercises such as examining environmental legislation	87	9.5%
Other	63	6.8%

16. Methods used by Teachers in Different Grade Levels. Discussion of environmental topics and problem solving exercises are employed about equally at all grade levels (Table 24). Teachers of grades 9-12 are much less likely to use field trips, or hands-on activities or projects, than are teachers in the lower grades and more likely to use debates on environmental issues and civic action exercises, such as examining environmental legislation. Teachers of grades 5-8 are more likely than either lower or higher grades to make use of independent or group research projects.

Table 24. Methods used by Teachers in Different Grade Levels

Method	Grade Level							
	K-4 (n=428)		5-8 (n=215)		9-12 (n=171)		Combination (n=94)	
	N	%	N	%	N	%	N	%
Discuss environmental topics covered in text-books or other reading material	385	90.0%	205	95.3%	150	87.7%	74	78.7%
Hands-on activities or projects	391	91.4%	172	80.0%	94	55.0%	68	72.3%
Problem solving exercises	237	55.4%	132	61.4%	100	58.5%	52	55.3%
Independent or group research projects	151	35.3%	116	54.0%	73	42.7%	37	39.4%
Field trips	263	61.4%	99	46.0%	45	26.3%	63	67.0%
Debates on environmental issues	51	11.9%	75	34.9%	72	42.1%	26	27.7%
Civic action exercises such as examining environmental legislation	15	3.5%	29	13.5%	33	19.3%	9	9.6%
Other	19	4.4%	16	7.4%	11	6.4%	17	18.1%

17. Percentage of Teachers Taking Pre-service and In-service Environmental Courses. The survey asked several questions regarding the environment-related course work a teacher had taken before becoming a teacher (pre-service) or since they began teaching (in-service training). Prior to becoming teachers only about one in ten (10.4%) had courses in environmental teaching methods (Table 26). Less than a third (26.5%) had prior course work in environmental science, ecology, or environmental studies. Somewhat larger proportions report receiving training in teaching methods (28.9%) or in science, ecology, or environmental studies (35.5%) after becoming teachers. Since a person could receive training both prior to and after becoming a teacher, these categories are not mutually exclusive. In an analysis to determine the total number of teachers who *ever* received each type of training, 39.2% have been trained in environmental teaching methods, and 62.1% of the respondents received some training in environmental science or ecology.

Table 25. Percentage of Teachers Taking Pre-service and In-service Environmental Courses

Course work	Number (n=923)	Percentage
Prior courses in environmental teaching methods	96	10.4%
Prior courses in environmental science/ecology or other environmental studies	245	26.5%
Later courses in environmental teaching methods	266	28.9%
Later courses in environmental science/ecology or other environmental studies	328	35.5%

18. Provider of Environmental Courses or Workshops. Table 26 presents data on the provider of the last environmental workshop or course taken by the teachers since they began teaching. Table 27 lists the providers by grade level of teachers. In total, national groups (26.7%) and school districts (25.5%) account for more than half the training, followed by colleges and universities (19.5%). Teachers in grade levels K-4 and 5-8 are more likely to attend workshops provided by national groups or school/school districts than are 9-12 teachers. High school teachers are much more likely to have received training at a college or university or from a state education agency than teachers in either of the lower grade groups.

Table 26[12]. Provider of Environmental Courses or Workshops

Provider	Number (n=420)	Percentage
National groups such as Project Wet, Project Wild, or Project Learning Tree	112	26.7%
School/district	107	25.5%
College or University	82	19.5%
Other	47	11.2%
State education agency	37	8.8%
State Conservation or Environmental Agency	35	8.3%

[12] This question referred to in-service courses only, and therefore was applicable only to 420 respondents who reported attending in-service courses or workshops.

Table 27[13]. Providers of Environmental Courses/Workshops for Teachers at Different Grades

Provider	Grade Level							
	K-4 (n=206)		5-8 (n=100)		9-12 (n=73)		Combination (n=36)	
	N	%	N	%	N	%	N	%
National group	62	30.1%	26	26.0%	11	15.1%	10	27.8%
School/district	59	28.6%	28	28.0%	9	12.3%	10	27.8%
College or University	39	18.9%	18	18.0%	22	30.1%	3	8.3%
Other	15	7.3%	9	9.0%	15	20.5%	7	19.4%
State education agency	12	5.8%	9	9.0%	10	13.7%	6	16.7%
State Conservation or Environmental Agency	19	9.2%	10	10.0%	6	8.2%	-	-

[13] This question referred to in-service courses only, and therefore was applicable only to 420 respondents who reported attending in-service courses or workshops.

19. Teaching Requirements & Support by School or District. The survey included a series of questions about required subjects and the level of support for teaching about the environment by their school or district administration. Table 28 shows answers to questions regarding teaching requirements and the support aimed specifically at teaching environmental topics. A quarter of teachers (26.6%) said that environmental topics are included on state or district performance tests. Yet, only about one in seven (14.7%) said that an environmental course is required for their students. Less than 15% of the respondents have ever been given financial support or time off for environmental training (14.2%) or obtained funding for teaching materials other than textbooks (12.8%).

Table 28. Teaching Requirements & Support by School or District

	Number of "Yes" responses	Percentage	Total
1. Are specific environmental topics included on state or district performance tests	237	26.6%	890
2. Is an environmental course required for your students?	133	14.7%	905
3. Have you ever obtained financial support or time off for environmental training?	129	14.2%	909
4. Have you ever obtained funding for environmental education materials, other than textbooks?	117	12.8%	911

D. Main Reasons for Teaching or Not Teaching Environmental Topics

1. Reasons To Teach About Environment. Teachers were asked to indicate the main reason that they taught about the environment. Seven possible reasons for teaching environmental topics were listed. The major reason noted for choosing to teach about the environment was to encourage students to protect the environment (Table 29). This reason was mentioned by about half of the respondents (51.1%), followed by demonstrating its relevance to everyday life (22.4%), and to help students understand current issues (9.7%). Small numbers of respondents (3-6%) cited interest of topic, to teach problem solving, or that it was just "something students should know' as their main reason for teaching environmental topics.

Table 29[14]. Reasons To Teach About the Environment

Reason	Number	Percentage
To encourage students to be active in protecting the environment.	441	51.1%
To demonstrate that what students are learning in class is relevant to everyday life.	193	22.4%
To help students understand current issues.	84	9.7%
It's something they should know.	52	6.0%
It's a good way to teach problem solving or decision making skills.	33	3.8%
Some other reason.	33	3.8%
Environmental issues are interesting and engage students' attention.	27	3.1%

[14]Fifty-seven respondents did not answer this question.

2. Reasons For Not Teaching About the Environment. Finally, as shown in Table 30, the 585 teachers who reported they did not teach environmental topics were asked to select from a list of possible reasons for not teaching about the environment. Among such reasons, "isn't relevant to my curriculum," (48.8%) and "too much other material to cover" (27.1%) were most frequently cited. It is interesting to note that less than 7% of these teachers indicated that "inadequate teaching materials" or "don't have enough knowledge" were barriers to teaching environmental topics. "Resistance from parents," "issues are too controversial," "children aren't interested," and "resistance from school district or school board" were cited by less than 1% of respondents as reasons for not teaching about the environment.

Table 30[15]. Reasons For Not Teaching About the Environment

Reason	Number	Percentage
Not relevant to my curriculum	272	48.8%
Too much other material to cover	151	27.1%
Other	81	14.5%
Inadequate teaching materials	34	6.1%
Don't have enough knowledge	17	3.1%
Resistance from parents	1	0.2%
Issues are too controversial	1	0.2%
Resistance from school district	0	0.0%
Resistance from school board	0	0.0%

[15]Twenty-eight respondents did not answer this question.

E. Conclusions

A majority of teachers responding to the survey include some environmental topics in their teaching. The number of teachers of courses devoted primarily to environmental topics is less common. Most often environmental topics are included as part of another course.

The majority of teachers of environmental topics did not report having had training themselves in either environmental teaching methods or in environmental science/ecology or environmental studies. In the former case only about a third have had such training, in the latter case, the percentage approaches half. In both cases, most of this training has taken place since they became teachers.

Teachers use a variety of sources for teaching materials. Already, the Internet has become a significant source of materials, but more traditional sources are widely used as well. A variety of organizations and agencies, as well as commercial publishers, provide teaching materials about the environment and are used by teachers.

In summary, the general impression from the survey findings is that there is relatively wide student exposure to at least some level of education about environmental topics. Most of this exposure takes place within the context of courses which are not devoted specifically to the environment. This preference for inclusion of environmental topics in other course vs. teaching courses about the environment may not necessarily be a weakness if it results in demonstrating the relevance of environmental issues to a number of fields.

F. Limitations of This Study

The methodological limitations of the present project stem from three sources: the somewhat low response numbers within each of the subgroups limited statistically meaningful comparisons, the small sample size of respondents who actually teach environmental topics, and the relatively small number of survey questions that could be included based on the resources available for conducting this survey. Methodologically, additional research could address each of these factors.

While it is not uncommon for studies to have response rates to mail surveys much lower than the 40% achieved for this study, whenever response rate dips below about 50%, there is a potential for significant nonresponse bias. That is, the nonrespondents, had they participated, may have affected some of the findings. There are generally two strategies for dealing with this. The first is to increase the response rate in future studies by additional follow-up efforts and the use of multiple data collection methods. The second is to select a subsample of mail survey nonrespondents to be pursued by different (typically more costly) data collection methods. The nonrespondents for whom data can be collected by these other means can then be compared to the mail sample and estimates of bias computed and, possibly, nonresponse weighting adjustments made. This will produce more accurate results, but does add some complexities to the analysis.

Because one of the key goals of the current study was to estimate what proportion of all teachers teach environmental topics, the sample of respondents who do teach such topics was much smaller than it would have been with a different design. This design decision meant that for about 40% of the respondents, only a very few of the questionnaire items were relevant. This design strategy greatly reduced the power of the analysis of teachers of environmental topics, as can be seen by the need to collapse item categories because of small sample sizes. (This design strategy may have also negatively affected response rates—teachers who did not teach environmental topics probably had much less motivation to participate.) A future study could address this by limiting the survey to teachers of environmental topics. This could be done using a combination of pre-survey telephone screening along with the information from this survey which shows, to some extent, what subjects are most likely to include environmental topics.

Another limitation imposed by the available resources was the number of items that could be asked. This could be addressed by a follow-up survey of the teachers identified in the present study. They could be recontacted, by mail or another method, and additional data collected from them. Of course, in a future study, this could also be addressed by an increase in available resources to conduct the study. But care would need to be taken that a longer questionnaire does not further depress response rates.

Appendix: Questionnaire

Environmental Education in the United States: A Teacher's View

Please circle only one response unless instructed otherwise.

Q1. In total, how many years have you been a teacher? _____

Q2. What grade(s) do you currently teach? **(Circle all that apply)**

K 1 2 3 4 5 6 7 8 9 10 11 12

Q3. How many hours do you spend in the classroom per week?_____

Q4. Do you: **(Please circle only one)**

1. Teach the same group of students most or all of the day **[PLEASE SKIP TO Q6]**
2. Teach the same subject to different students most of the day
3. Teach several different subjects each day to different students

Q5. What **one** subject do you **primarily** teach? **(Please circle only one)**

1. Art
2. At Risk / Special Education
3. Business Education
4. Computer Science
5. English or Reading
6. Family / Consumer Science
7. Foreign Language
8. Health
9. Mathematics
10. Music
11. Physical Education
12. Science
13. Social Studies
14. Other, specify: _____

Environmental topics are those that relate to natural resources. Examples include energy sources, recycling, endangered species, global warming, water quality, and air quality.

Q6. Do you teach environmental topics?

1. YES 2. NO **[PLEASE SKIP TO Q22]**

Q7. Do you:

1. Teach a course(s) about the environment,
2. Include environmental topics in other courses, or
3. Do both

Q8. What **environmental topics** do you teach? (Circle YES or NO for each)

a. Conserving energy	**YES**	**NO**
b. Recycling and waste management	**YES**	**NO**
c. Water quality	**YES**	**NO**
d. Air quality	**YES**	**NO**
e. Population growth	**YES**	**NO**
f. Forests and wetlands	**YES**	**NO**
g. Acid rain	**YES**	**NO**
h. Global warming and the ozone layer	**YES**	**NO**
i. Endangered species	**YES**	**NO**
j. Other (specify) _____		

Q9. In a year, how many hours do you spend **in all** classroom teaching? _____

Q10. About how many of these hours do you spend **in all** teaching about the environment?_____

Q11. Where do you obtain environmental teaching materials? (Circle YES or NO for each)

a. Textbooks	**YES**	**NO**
b. Television or radio	**YES**	**NO**
c. Newspapers	**YES**	**NO**
d. News magazines	**YES**	**NO**
e. Journals	**YES**	**NO**
f. Internet	**YES**	**NO**
g. Library	**YES**	**NO**
h. Directly from groups or agencies	**YES**	**NO**
i. Some other place specify: _____		

Q12. Of these sources, which one are you **most** satisfied with? **(Please circle only one)**

a b c d e f g h i none

Q12a. What's the main reason for your satisfaction? **(Please circle only one)**

1. Ease of locating materials
2. Cost
3. Quality of the sources
4. Some other reason, specify:_____

Q13. Do you use any materials from: (Circle YES or NO for each)

a. Business and industry	**YES**	**NO**
b. Environmental groups	**YES**	**NO**
c. Local, state or federal educational agencies	**YES**	**NO**
d. Local, state or federal natural resource / environmental management agencies	**YES**	**NO**
e. Educational groups (for example, NSTA, NAAEE or Project WILD)	**YES**	**NO**
f. Commercial publishers	**YES**	**NO**

Q14. Of these materials, which one have you found most useful? **(Please circle only one)**

a b c d e f none

Q14a. What's the **main** reason why you found it useful? **(Please specify)**

_____

_____

_____

Q15. How do you mainly find out about environmental education materials? **(Please circle only one)**

1. Word of mouth
2. Conferences
3. Direct mail
4. Internet
5. Catalogues
6. Attend training workshops
7. Some other way, specify:

_____

In answering the Q16 series, please think about your current job:

Q16a. Is an environmental course required for your students?	Yes	No	Don't Know
Q16b. Have you ever obtained funding for environmental education materials, other than textbooks?	Yes	No	Don't Know
Q16c. Have you ever obtained financial support or time off for environmental training?	Yes	No	Don't Know
Q16d. Are specific environmental topics included on state or district performance tests?	Yes	No	Don't Know

Q17. What is the **main** reason you teach about the environment? **(Please circle only one)**

1. To help students understand current issues
2. To demonstrate that what students are learning in class is relevant to everyday life
3. To encourage students to be active in protecting the environment
4. Environmental issues are interesting and engage students' attention
5. It's a good way to teach problem solving or decision making skills
6. It's something they should know
7. Some other reason (specify) _____

Q18. Which of the following methods do you use: (Circle YES or NO for each:)

a. Discuss environmental topics covered in textbook or other reading materials	**YES**	**NO**
b. Hands-on activities or projects	**YES**	**NO**
c. Independent or group research projects	**YES**	**NO**
d. Debates on environmental issues	**YES**	**NO**
e. Field trips	**YES**	**NO**
f. Problem-solving exercises	**YES**	**NO**
g. Civic action exercises, such as examining environmental legislation	**YES**	**NO**
h. Something else? (specify)_____		

Q19. Prior to becoming a teacher, did you take:	**YES, how many?**	**NO**
a. Courses or workshops in environmental teaching methods		
b. Courses or workshops in environmental science, ecology, or other environmental studies		

Q20. Since you began teaching, have you taken:	**YES, how many?**	**NO**
a. Courses or workshops in environmental teaching methods		
b. Courses or workshops in environmental science, ecology, or other environmental studies		

Q21. If you have taken such courses or workshops **since you began teaching**, who provided the **last** course or workshop you attended?

1. School or school district
2. A state education agency
3. A national group such as Project Wild or Project Learning Tree
4. The State Conservation or Environmental Agency
5. A local college or university
6. Some other organization, specify: _____

End of Survey for those who teach about the environment. Thank you for your help!

Q22. What's the **main** reason you don't teach about the environment? **(Circle only one)**

1. Don't have enough knowledge
2. Resistance from parents
3. Children aren't interested
4. Resistance from school district or school board
5. Inadequate teaching materials
6. Too much other material to cover
7. Isn't relevant to my curriculum
8. Issues are too controversial
9. Other, specify:_____

End of Survey! Thank you for your help!